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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,896	01/23/2004	Janet Crossman-Bosworth	UNIV0200	7781

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EXAMINER
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HUGHES, JAMES P

ART UNIT	PAPER NUMBER
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2883

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 10/763,896	<b>Applicant(s)</b> CROSSMAN-BOSWORTH ET AL.	
	<b>Examiner</b> James P. Hughes	<b>Art Unit</b> 2881	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 May 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 21-35 is/are withdrawn from consideration.
- 5) ☒ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 36-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-48 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 January 1932 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>062804</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-20 and 36-48, drawn to compact scanner and its corresponding method of use, classified in class 385, subclass 25.
  - II. Claims 21-35, drawn to a method of manufacturing a fiber optic device, classified in class 65, subclass 429.

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process as claimed can be used to make a materially different product, for example the limitations of substantially reducing a cross-sectional area of a portion of the waveguide adjacent to the distal end, leaving the distal end of the waveguide where the optical component is attached unreduced in cross-sectional area; and coupling an actuator to the waveguide to vibrate the portion of waveguide that is reduced in cross-sectional area at a desired frequency and in a desired pattern, excitation of the waveguide by the actuator causing the optical component to rotate without substantial lateral displacement, so as to scan a region with light exiting the optical component", is not contained in claims 1 or 36.

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Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

2. During a telephone conversation with Ronald Anderson on November 23, 2004 a provisional election was made with traverse to prosecute invention I, the apparatus and corresponding method of use of a compact scanner, claims 1-20 and 36-48. Affirmation of this election must be made by applicant in replying to this Office action. Claims 21-35 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1-4, 6-11, 13, 15-17, 19-20, 36-43, 46, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Seibel et al. (6,294,775). Seibel et al. (6,294,775), hereinafter referred to as "Seibel", teaches a compact scanner comprising; a waveguide (26, 36) that conveys light between a proximal and a distal end (58), said waveguide having an effective light source position proximate to the distal end; an optical component – e.g., collimating lens 37 – is attached to the distal end of the said optical reducing a numerical aperture of the waveguide; and an actuator (e.g., 28) for exciting a portion of the waveguide that is adjacent to the distal end and is cantilevered from the actuator to vibrate at a desired frequency and in a desired pattern, excitation of the portion of the waveguide that is cantilevered from the actuator causing a rotation to occur for scanning a region with light from the optical component. (See e.g., Col. 9, ll. 55 – Col. 11, ll. 15; Col. 13, ll. 35 - Col. 14, ll. 48; and Figs. 5A-5D, 12)

Seibel teaches that to maintain a node of natural vibratory resonance at the distal tip of the waveguide (26, 36) the mass and dampening at the distal end (58) is controlled design feature. Typically, a small increase in both mass and damping from the waveguide of uniform geometry and material properties is sufficient. (See Col. 10, ll. 25-35) Additionally, Seibel teaches that the deflection system (28) may scan along a linear path or radial raster scan pattern. (See e.g., Col. 12, ll. 30-40).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5, 12, 14, 18, 44, 45, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seibel et al. (6,294,775) in view of Fauver et al. (20020064341).

The applied reference – Fauver et al. (20020064341) – has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention “by another”; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was

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made, owned by the same person or subject to an obligation of assignment to the same person.

See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Seibel teaches a compact scanner, as discussed above in section 4. However, Seible does not teach that the waveguide may have a non-linear tapered section.

Fauver et al. (20020064341), herein after referred to as “Fauver”, teaches a micro-fabricated compact optical scanner comprising; a waveguide (50) may have a non-linear tapered section (e.g., 22, 52, 54), that conveys light between a proximal and a distal end (24), said waveguide having an effective light source position proximate to the distal end; an optical component – e.g., micro lens (118) – is attached to the distal end of the said optical reducing a numerical aperture of the waveguide; and an actuator (e.g., 36) for exciting a portion of the waveguide that is adjacent to the distal end and is cantilevered from the actuator to vibrate at a desired frequency and in a desired pattern, excitation of the portion of the waveguide that is cantilevered from the actuator causing a rotation to occur for scanning a region with light from the optical component. (See e.g., paragraphs 43-53, 63-65, 71-75, and 84-85) Additionally, it is taught that the scanning may occur in a rotating linear or propeller can pattern, (See e.g., paragraph 75).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine a tapered waveguide – as taught by Fauver – in the invention of Seible because this would allow the device, and corresponding method of use, to efficiently operate at the resonance frequencies needed as taught by Seible (e.g., Col. 1, ll. 55 - Col. 2, ll. 62) and Fauver (e.g., paragraphs 4-5).

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Agostinelli et al. (6,550,918) teaches a compact scanner comprising a waveguide (138) that conveys light between a proximal and a distal end, said waveguide having an effective light source position proximate to the distal end; an optical component that is attached to the distal end of the said optical component reducing a numerical aperture of the waveguide; and an actuator (140) for exciting a portion of the waveguide that is adjacent to the distal end and is cantilevered from the actuator to vibrate at a desired frequency and in a desired pattern, excitation of the portion of the waveguide that is cantilevered from the actuator causing a rotation to occur for scanning a region with light from the optical component. (See e.g., Col. 11, ll. 15 – Col. 14, ll. 64 and Fig. 5). Agostinelli et al. (6,779,892) and Cobb (6,755,532) teach similar inventions as that of Agostinelli '918)

Moskovits et al. (6,515,274) teaches a near-field scanning optical microscope that comprises a fiber optic scanner. (See e.g., Col. 7, 10 – Col. 8, ll. 65 and Fig. 3) Seibel et al. (2002/0139920) teaches an image acquisition process. (Abstract) Palmer et al. (4,234,788) teaches an optical fiber scanning device wherein a fiber (10) is scanned over a scan area, driven by electrostatic forces. (Abstract, Fig. 1)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James P. Hughes whose telephone number is 571-272-2474. The examiner can normally be reached on Monday - Friday 9am - 5pm.

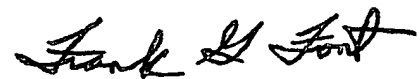


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on 571-272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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